RESPONSE UNDER 37 CFR § 1.111

This paper responds to a non-final Official Action mailed March 24, 2003. Claims 1, 3-8, 11, 13-17, 19, 20, and 24-29 have been amended, claims 2 and 21-23 have been cancelled, and claims 30-36 have been added. In view of the foregoing amendments, as well as the following remarks, Applicant respectfully submits that the application is in complete condition for allowance and requests reconsideration of the application in this regard.

Applicant notes with appreciation the Examiner's indication of allowable subject matter in claims 2, 5 and 10-18. Initially, it should be noted that claims 11 and 13-17 have been amended to merely correct informalities for purposes not relating to patentability.

Objection to the Drawings

The Examiner objected to the drawings as failing to show the circumferential flange of claim 9. Applicant submits that circumferential flange (27) is shown in Fig. 2 and is described in the specification at page 8, line 14 to page 9, line 2. Therefore, withdrawal of the Examiner's objection is appropriate.

Rejections of Claims Under 35 U.S.C. § 103

Claims 1, 3, 4, 8 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,024,120 (Andra) in view of U.S Patent No. 3,196,710 (Pierce). Applicant has elected to rewrite dependent claim 2 in independent form by incorporating by amendment all limitations of claim 2 into independent claim 1.

Therefore, independent claim 1, and claims 4, 8 and 9 depending therefrom, are now deemed to be in allowable form and Applicant therefore solicits early notice to this effect.

Claims 6, 7, and 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Andra and Pierce further in view of U.S. Patent No. 5,112,282 (Patterson). Applicant notes that claim 15 depends from an allowable claim 10 and, therefore, the rejection of claim 15 should be withdrawn. Applicant further notes that claims 6 and 7 now depend from an allowable claim 1, as amended. Therefore, Applicant respectfully requests that the rejection of these claims be withdrawn.

Claims 19, 20 and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Andra in view of U.S. Patent No. 3,200,665 (Wells). Of these claims, claim 23 has been cancelled. Claim 19 is directed to a damper and, as amended, recites an insert including a second cylindrical surface confronting a first cylindrical surface of a polymer body and a plurality of splines that project radially outward from the second cylindrical surface into the polymer body, in which the splines are aligned substantially parallel to an axis about which an inertia ring of the damper is centered. The Examiner concedes that Andra does not disclose projections extending radially from the insert into the polymer body. The Examiner contends that it would have been obvious to one of ordinary skill in the art to combine the damper of Andra to have the protrusions disclosed by Wells. Applicant respectfully disagrees for the reasons set forth below.

Applicant submits that the combination of Andra and Wells does not disclose the combination of elements recited in claim 19. Specifically, neither reference

discloses that the insert has a cylindrical surface that confronts a cylindrical surface on the polymer body and splines that extend radially outward from the cylindrical of the insert into the polymer body. As the Examiner has conceded, Andra does not disclose protrusions that extend radially into the polymer body. The "crests of flange 1 at 8" identified by the Examiner as splines are not radially-projecting structures that penetrate the polymer body. Instead, the "crests" have a smooth sinusoidal appearance. No portion of the crests projects into the polymer body, as conceded by the Examiner, but instead the crests define a smooth, undulating interface. Thus, even if the two references were combined, the resulting damper would not include every element of claim 19. Therefore, the Examiner has failed to establish a *prima facie* case of obviousness. For at least this reason, Applicant submits that claim 19, and claim 20 depending therefrom, are allowable and that the rejection should be withdrawn.

Claims 21 and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Andra and Wells further in view of U.S. Patent No. 4,899,323 (Fukahori et al.). As these claims have been cancelled, Applicant requests that the rejection be withdrawn.

Claim 24 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Andra in view Fukahori et al. Independent claim 24 is directed to a torsional vibration damper having a polymer body and an insert radially inward of the polymer body in which the polymer body is formed from a composite including a polyamide matrix and a reinforcing filler dispersed in the polyamide matrix. The Examiner asserts that Andra discloses a polymer body (5) formed of "a polyamide composite (col. 3, lines 57-59; plastic)." The Examiner contends that it would have been obvious to modify the

polymer of Andra by adding a reinforcing filler taught by Fukahori et al. Applicant respectfully disagrees for the reasons set forth below.

Fukahori et al. is not concerned with strengthening a polymer body coupled with a damper insert. Instead, Fukahori et al. adds a filler to a viscoelastic material in a seismic damper that is absorbing the vibrations. Applicant's polymer body does not absorb vibrations but, instead vibration absorption is accomplished by the elastomeric layer disposed between the inertia ring and the polymer body. Fukahori et al. does not provide any motivation or rationale for forming the polymer body of a torsional vibration damper from a filler-reinforced plastic, much less filler-reinforced polyamide. Applicant is not the first to strengthen a material by adding a reinforcing filler. Instead, Applicant's claimed invention is to construct the polymer body of the damper from a polyamide matrix having a reinforcing filler. Viscoelastic materials, as disclosed in Fukahori et al., are resilient and deform when subjected to and relieved of stress and, therefore, differ significantly from a polyamide composite that retains its strength and stiffness at elevated temperatures. As the claimed polymer body must be strong and stiff at the operating temperatures of an internal combustion engine, Fukahori et al. does not suggest forming the polymer body in a torsional vibration damper from a filler-reinforced polyamide as temperature stability and strength at high temperatures is not of concern in Fukahori et al. As Fukahori et al. does not provide a proper motivation for combining the references, the Examiner has not supported a *prima facie* case of obviousness. For at least this reason, Applicant submits that claim 24 is patentable and that the rejection of claim 24 should be withdrawn.

Assuming, *arguendo*, that one combined Andra and Fukahori et al. as suggested by the Examiner, the resulting damper would not include all the elements of the damper of claim 24. As is well-known to a person of ordinary skill in the art, polyamide is a plastic or polymer. Applicant has not invented the formulation for polyamide. Instead, Applicant's claimed invention is to construct the polymer body of the damper from a polyamide composite. Andra discloses generically a polymer body formed of "plastic." Andra is silent about the specific type of plastic. In particular, Andra does not disclose the use of polyamide and cannot provide an enabling disclosure of polyamide for use in constructing the polymer body of a damper. Moreover, Andra does not disclose that the plastic is a composite, which by definition is a polymer resin matrix containing a reinforcing filler. *See* Applicant's specification at page 14, lines 13-17. Therefore, even if the two references were combined, the resulting damper would not include every element of claim 24. For this reason alone, the Examiner has failed to establish a *prima facie* case of obviousness.

Fukahori et al. teaches adding a reinforcing filler to a viscoelastic material for use in the viscoelastic material of an anti-seismic damper for machines and structures. Fukahori et al. does not cure the deficiencies of Andra in that polyamide is not expressly included among the laundry list of viscoelastic materials listed in column 4 of Fukahori et al. Fukahori et al. discloses adding a filler to a viscoelastic material for a seismic damper but does not provide an enabling disclosure of polyamide filled with a reinforcing filler for use in constructing the polymer body of a torsional vibration damper. Therefore, even if the two references were combined, the resulting damper would not

include every element of claim 24. For this reason alone, the Examiner has failed to establish a *prima facie* case of obviousness.

For at least these reasons, Applicant respectfully submits that independent claim 24 is patentable and requests that the rejection of claim 24 be withdrawn.

Claims 25-29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Andra and Fukahori et al. further in view of U.S. Patent No. 5,112,282 (Patterson). The Examiner asserts Patterson cures the deficiency of the combination of Andra and Fukahori et al. by disclosing the use of glass as reinforcing filler. Applicant respectfully disagrees with the Examiner's assertion for the reasons set forth below.

Patterson does not contemplate the problems arising from operation of a torsional vibration damper at the operating temperatures found in an internal combustion engine. Instead, Patterson is concerned with strengthening a power transmission belt by adding a reinforcing fabric liner that may be formed from a number of diverse candidate materials, including polyamide. Patterson is not concerned with dispersing a reinforcing filler of glass in a polyamide matrix for high temperature strengthing of the polymeric body of a damper. For at least this reason, Applicant submits that claims 25-29 are patentable and that the rejection of these claims should be withdrawn.

Assuming, *arguendo*, that one combined Andra, Fukahori et al. and Patterson, the resulting damper would not include all the elements of claim 25. Specifically, Patterson does not cure the deficiencies of either Andra or Fukahori et al.

Patterson discloses the use of polyamide in the fabric liner. Patterson also discloses the use of fiberglass in the fabric liner. However, Patterson does not disclose the combined use of fiberglass and polyamide, nor does Patterson disclose glass-filled polyamide. Moreover, Patterson does not disclose a composite polyamide (i.e., a polymer resin matrix of polyamide containing a filler). A composite polymer is a term that a person of ordinary skill in the art would associate with reinforcing filler dispersed in a polymer matrix. Thus, even if the references were combined as suggested by the Examiner, the resulting torsional vibration damper would not include every element of claim 25. For at least this additional reason, the Examiner has not established a *prima facie* case of obviousness. Therefore, Applicant submits that claim 25, and claims 26-29 depending therefrom, are patentable and requests that the rejection be withdrawn.

Claims 30-36 have been submitted as new claims directed to a hub mountable to a rotatable shaft. Independent claim 30, and claim 31 depending therefrom, are allowable for at least the same or similar reasons as independent claim 1. Independent claim 32, and claims 33 and 34 depending therefrom, are allowable for at least the same or similar reasons as independent claim 10. Independent claim 35, and claim 36 depending therefrom, are allowable for at least the same or similar reasons as independent claim 24.

CONCLUSION

Applicant has made a bona fide effort to respond to each and every requirement set forth in the Office Action. In the event that any issues remain

outstanding, the Examiner is invited to contact the undersigned to expedite issuance of this application.

Applicant does not believe fees are due in connection with filing this communication, other than the excess claims fee. If, however, additional fees are necessary as a result of this communication, the Commissioner is hereby authorized to charge any under-payment or fees associated with this communication or credit any over-payment to Deposit Account No. 23-3000.

Respectfully submitted,
WOOD, HERRON & EVANS, L.L.P.

By: William R. Allen
William R. Allen, Ph.D.
Reg. No. 48,389

2700 Carew Tower
Cincinnati, Ohio 45202
(513) 241-2324